

Amendment to the Claims:

The listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) A modelling method for optimizing displacement conditions, in a porous medium wettable by a first wetting fluid, of a three-phase mixture of fluids including ~~this the~~ first wetting fluid and at least a second, non-wetting fluid, comprising ~~in combination~~:

~~—experimental determination of the~~ determining experimentally a variation curve of capillary pressure (P_c) ~~in the pores of a sample of this the~~ porous medium in ~~the a~~ presence of the first wetting fluid and of the second non-wetting fluid;_i

[~~-~~] modelling the pores of the porous medium by a distribution of capillaries with a fractal section by considering a stratified distribution of the fluids in the pores, the first wetting fluid spreading out in contact with ~~the walls of the pores~~ and around ~~said at least one other fluid~~_i

[~~-~~ ~~determination~~ determining, from ~~said the~~ capillary pressure curve (P_c), of the fractal dimension values corresponding to a series of given values of the saturation in ~~the liquid phases~~']_i

[~~-~~] modelling hysteresis effects that modify ~~the mobile saturations of the fluids~~ effectively displaced in the sample according to the number of drainage and imbibition cycles undergone by the sample, involving different non-wetting fluid

trapping or untrapping constants according to whether a ~~the~~ drainage stage or an imbibition stage is the imbibition cycles are carried out;

[~~-~~]-modelling ~~the~~ relative permeabilities directly in ~~the form of~~ analytic expressions depending on ~~the~~ different fractal dimension values which are obtained; and

[~~-~~]-entering the relative permeabilities into a porous medium simulator and ~~determination~~ determining, by means of ~~this~~ the simulator, of optimum displacement conditions for the mixture of fluids in the porous medium.

2. (Currently Amended) A method as claimed in claim 1, ~~characterized in that~~ wherein the pores of the porous medium are modelled by a distribution of capillaries with a fractal distribution by considering a stratified distribution of the fluids in the pores, the wetting fluid spreading out in contact with the walls, the gas occupying the ~~centre~~ center of the pores and the second fluid being distributed in the form of an annular film in contact with both the gas and the first fluid.

3. (Currently Amended) A method as claimed in claim 1, ~~characterized in that~~ the wherein a reservoir simulator is used to determine ~~the~~ optimum characteristics of substances added to wetting fluid slugs injected in a formation alternately with gas slugs in order to displace hydrocarbons in place.

4. (Currently Amended) A method as claimed in claim 1, ~~characterized in that it comprises~~ comprising using a reservoir simulator ~~in order to~~ determine the optimum characteristics of a fluid injected into ~~the~~ soil in order to drain polluting substances.

5. (Currently Amended) A method as claimed in claim 2, ~~characterized in that the~~ wherein a reservoir simulator is used to determine the optimum characteristics of substances added to wetting fluid slugs injected in a formation alternately with gas slugs in order to displace hydrocarbons in place.

6-9. Cancelled (without disclaimer or prejudice).

10. (New) A method as claimed in claim 2, comprising using a reservoir simulator to determine optimum characteristics of a fluid injected into soil in order to drain polluting substances.